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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/540,965	08/25/2005	Takuji Higashioji	TIP-05-1179	6051

35811 7590 07/29/2008
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EXAMINER	
NELSON, MICHAEL B	

ART UNIT	PAPER NUMBER
1794	

MAIL DATE	DELIVERY MODE
07/29/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/540,965	HIGASHIOJI ET AL.	
	Examiner	Art Unit	
	MICHAEL B. NELSON	1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 June 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,5-8,10-14 and 28-36* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,5-8,10-14 and 28-36* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. The amendments filed on 06/12/08 have been entered. Claims 3, 4, 9 and 15-27 have been cancelled and the 112 2nd paragraph rejections have subsequently been withdrawn. It is noted that claim **9** was cancelled from the claims but was not listed among the cancelled claims in the remarks on page 1. The amendments to the specification have been entered and the declaration filed on 06/12/08 provides support for the mistranslation. The objection to the specification has subsequently been withdrawn.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 28 recites the limitation "the non-ductile resin" in line 4. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. Claims 1, 2, 6, 10-14, 28, 29 and 33-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumura et al. (U.S. 4,419,308), in view of Ashcraft et al. (U.S. 4,377,616).

6. Regarding claim 1, Matsumura et al. discloses a porous (i.e. network containing) film (See Abstract) containing a liquid-crystalline polyester (See C3, L60-C4, L15, aromatic polyesters (i.e. PET) copolymerized with p-hydroxybenzoic acid are liquid-crystalline polyesters). Matsumura et al. also discloses that biaxial stretching of the film can improve its

mechanical strength (C12, L50-60). Matsumura et al. does not disclose that other layers be used in conjunction with the network containing layer.

Ashcraft et al. discloses a multilayer laminate including a void-containing network layer and two facing layers (See Abstract) in which the core network layer has between 30-85% of the overall thickness (C2, L30-55) and the entire laminate is biaxially stretched (C6, L25-40). Ashcraft et al. discloses that the outer layers of the laminate serve to prevent the manifestation of irregularities in the core layer to the surface of the overall laminate (C1, L55-65)

The inventions of both Matsumura et al. and Ashcraft et al. are drawn to the field of network containing films and therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to have modified the network containing layer of Matsumura et al. by using it with the two facing layers as taught by Ashcraft et al. for the purposes of imparting reduced surface irregularities.

Modified Matsumura et al. does not specifically disclose the instant claimed specific gravity, however, one of ordinary skill in the art would adjust the amount of porosity (i.e. amount of void space and therefore specific gravity) in the network containing layer, through routine experimentation, in order to optimize the mechanical strength (among other properties) of the overall laminate.

Regarding claims 2, 6, 10-14 and 33-36, modified Matsumura et al. discloses all of the limitations as set forth above. Additionally, Ashcraft et al. discloses that the void free layers be placed on both faces of the network containing layer and that the % thickness of the network containing layer be between 30 and 85%, which falls within the instant claimed range (C1, L45-65 and C2, L30-55). Additionally, Matsumura et al. discloses a variety of imides to be added to

the laminate (See Abstract and C6, L65-C7, L35). Matsumura et al. also discloses that p-hydroxybenzoic acid (an aromatic oxycarbonyl unit) be copolymerized with the polyester PET (C4, L5-15).

Regarding claims 28 and 29, modified Matsumura et al. discloses all of the limitations as set forth above. Additionally, Ashcroft et al. discloses a method of forming cracks in a laminate comprising coextrusion of the layers followed by biaxial stretching (C6, L25-40). Matsumura et al. discloses that the biaxial stretching of the network including layer would increase its pore size (C12, L50-60).

7. Claims 5, 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumura et al. (U.S. 4,419,308), in view of Ashcraft et al. (U.S. 4,377,616), as applied to claim 1 above, and further in view of Radovanovic et al. (WO 01/16229).

Regarding claims 5-8, modified Matsumura et al. discloses all of the limitations as set forth above. Matsumura et al. does not disclose that part of the network containing layer's resin composition be non-liquid crystalline.

Radovanovic et al. discloses a resin containing 15-80 parts of a liquid crystal polyethylene polymer (See Abstract), which is combined with a non-liquid crystal, amorphous polyethylene polymer to form a porous network structure after cooling and stretching (Page 1, L20-Page 2, L20). The presence of the non-liquid crystal, amorphous polyethylene allows the mixture to undergo phase separation when cooled. While the polymer base (polyolefin) of the porous network structure of Radovanovic et al. is not a polyester, one having ordinary skill in the art would recognize that the ability to form the porous structure arises from crystalline and non-

crystalline mixture of compatible polymers. Hence it would be obvious to try mixtures of other crystalline and non-crystalline polymers (i.e. crystalline and non-crystalline polyesters or crystalline and non-crystalline polyethers) to lend different properties to the final porous film (i.e. high tensile strength of polyesters).

The inventions of both modified Matsumura et al. and Radovanovic et al. are drawn to the field of porous films and therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to have modified the liquid crystal resin composition of modified Matsumura et al. by incorporating non-liquid crystal compatible polymers as taught by Radovanovic et al. for the purposes of imparting thermal phase separation abilities.

8. Claims 30-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumura et al. (U.S. 4,419,308), in view of Ashcraft et al. (U.S. 4,377,616), as applied to claim 1 above, and further in view of Nakatani et al. (U.S. 20041/0003610).

Regarding claims 30-32, modified Matsumura et al. does not disclose the use of the porous membrane laminate in circuit materials or the like.

Nakatani et al. discloses a porous, insulating, base material with tackfree (i.e. release films) on both sides thereof for use with electronic circuits (See Abstract).

The inventions of both modified Matsumura et al. and Nakatani et al. are drawn to the field of porous laminates and therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to have used the porous laminate of modified Matsumura et al. as a tackfree electrically insulating circuit material as taught by Nakatani et al. for the purposes of imparting improved marketability to the invention.

Response to Arguments

9. Applicant's arguments with respect to claims 1, 2, 5-8, 10-14 and 28-36 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHAEL B. NELSON whose telephone number is (571) 270-3877. The examiner can normally be reached on Monday through Thursday 6AM-4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carol Chaney can be reached on (571) 272-1284. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/MN/
07/21/08

/Carol Chaney/
Supervisory Patent Examiner, Art Unit 1794